



**U.S. Army
Environmental
Center**

SIERRA ARMY DEPOT Lassen County, California

Record of Decision/Remedial Action Plan Seven Sites

Final

**Contract DAAA15-90-D-0011
Task Order 2**

September 1995



MONTGOMERY WATSON

1.0 DECLARATION

1.1 SITE NAME AND LOCATION

Seven sites at Sierra Army Depot (SIAD), Lassen County, California:

- TNT Leaching Beds Area
- Diesel Spill Area
- Old Fire-Fighting Training Facility
- Nike Missile Fuel Disposal Site A
- Nike Missile Fuel Disposal Site B
- Toxic Storage Building 578
- Unidentified Pit

1.2 STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD)/Remedial Action Plan (RAP) presents, for the sites listed above, the selected response actions that were chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments Reauthorization Act of 1986 (SARA), to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and Chapter 6.8 of the California Health and Safety Code. Further, these actions are also being taken in response to the California Water Code. This ROD/RAP explains the factual and legal basis for selecting the response actions for the seven sites. The information supporting the selected response actions is contained in the Administrative Record for these sites. The State of California, as represented by the Department of Toxic Substances Control (DTSC), Lahontan Regional Water Quality Control Board (RWQCB), and the U.S. Army (Army), concur with the selected response actions.

Section 25356.1(d) of the California Health and Safety Code requires that a RAP approved by DTSC include a non-binding preliminary allocation of financial responsibility among all identifiable potentially responsible parties. Upon consideration of all the evidence, DTSC has concluded that the preliminary non-binding allocation of financial responsibility in this ROD/RAP is as follows:

U.S. Army, Sierra Army Depot

100 percent

The content of this ROD/RAP is based on recommendations in the U.S. Environmental Protection Agency's (USEPA's) Interim Final Guidance on Preparing Superfund Decision Documents (USEPA, 1989a).

1.3 ASSESSMENT OF THE SITES

1.3.1 TNT Leaching Beds Area

The TNT Leaching Beds Area actually consists of two subsites: TNT Leaching Beds Subsite and Paint Shop Subsite. The TNT Leaching Beds Subsite is composed of two unlined depressions or leaching beds approximately 50 feet by 100 feet and 50 feet by 50 feet, respectively. These beds were used in conjunction with a shell washout facility that operated from the early 1940s to 1949, when it was demolished. Water, containing explosive compounds, flowed through a concrete-lined trough to the unlined beds where it infiltrated into the soil. Investigations conducted as part of the U.S. Army Installation Restoration Program (IRP) determined that soil and groundwater at the TNT Leaching Beds Subsite are contaminated with explosives. The Paint Shop Subsite consists of the area surrounding a concrete pad that was formerly an ammunition renovation area. A cement-lined trough extends eastward from the concrete pad towards a depression that was a drywell or settling pond. Wastewater suspected to be mixed intermittently with solvents was washed down sink and floor drains at the facility through the concrete trough and into the drywell or settling pond. Laboratory analyses indicate that soil at the Paint Shop Subsite is contaminated with volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) and groundwater is contaminated with VOCs, primarily trichloroethene (TCE).

Actual or threatened releases of hazardous substances from the TNT Leaching Beds Area, specifically explosives, VOCs, and SVOCs in soil, and VOCs and explosives in groundwater, if not addressed by implementing the response actions selected in this ROD/RAP, may present an imminent and substantial endangerment to public health, welfare, or the environment.

1.3.2 Diesel Spill Area

A diesel oil spill was discovered at this site on March 3, 1987. The spill was the result of a small leak in an underground pipe leading from an underground storage tank. The area surrounding the former leak was excavated and restored with fill material in 1987. The underground storage tank and piping were removed August 19, 1990. Investigations conducted at the Diesel Spill Area determined that subsurface soil and groundwater are contaminated with diesel-related compounds. Diesel contamination was not found in surface soils and is limited to between 15 feet below ground surface (bgs) and the water table (approximately 62 feet bgs).

Actual or threatened releases of hazardous substances from the Diesel Spill Area, specifically diesel-related compounds in soil and groundwater, if not addressed by implementing the response action selected in this ROD/RAP, may present an imminent and substantial endangerment to public health, welfare, or the environment.

1.3.3 Old Fire-Fighting Training Facility

The Old Fire-Fighting Training Facility was initially a paved and bermed ice skating rink. It appears to have also been used as a tennis court. The site was reportedly used to train SIAD

fire-control personnel in the early 1960s. Cobalt and lead were detected at levels slightly above background in the surface soil, and arsenic, barium, iron, magnesium, manganese, and potassium were detected at levels slightly above background levels in subsurface soils. Although several metals were detected at levels slightly above calculated background concentrations, the levels detected reflect natural conditions. Therefore, no further action is recommended for this site.

1.3.4 Nike Missile Fuel Disposal Site A

The Nike Missile Fuel Disposal Site A was used for the disposal of fuel components from Nike Ajax missiles. Fuel disposal activities included the burning of aviation gasoline (JP-4) in shallow pits, and the evaporation of inhibited red-fuming nitric acid in small aluminum dishes adjacent to the burning pits. Nitrate was the only chemical detected in soil and groundwater at levels above background concentrations. However, nitrate levels in groundwater samples were significantly lower than state drinking water standard levels. Because the maximum on-site concentrations were well below values considered to pose potential risks to human health and the environment, no further action is recommended at this site.

1.3.5 Nike Missile Fuel Disposal Site B

Fuel disposal activities for the Nike Missile Fuel Disposal Site B were the same as those activities at the Nike Missile Fuel Disposal Site A. Nitrate was the only chemical detected in soil at concentrations above background. However, nitrate levels in groundwater at this site were below state drinking water standards. Because maximum concentrations were well below calculated values considered to pose potential risks to human health and the environment, no further action is recommended at this site.

1.3.6 Toxic Storage Building 578

The Toxic Storage Building 578 site consists of the area surrounding Building 578, including an adjacent drainage ditch. Building 578 is a relatively small, one-story, concrete warehouse. The concrete slab floor in the building slopes toward a centrally located drain that extends beneath the building to the east and onto an outside gravel-covered drain area. A spill of 1 quart of cyanide was reported; however, no cyanide was detected during an investigation conducted at the site. Aluminum, calcium, iron, magnesium, and sodium were detected at concentrations slightly exceeding background levels but are believed to represent natural conditions. These metals were determined to cause no potential adverse effects on human health and the environment because they were either considered essential human nutrients and/or were not appreciably toxic at the relatively low concentrations detected. Therefore, no further action is recommended at this site.

1.3.7 Unidentified Pit

The Unidentified Pit site, which is oval in shape and measures approximately 100 feet by 45 feet by 10 feet deep, was first observed by the Army during a helicopter flight over SIAD in 1989.

During a site visit in 1992, a shallow 3-foot-wide ditch was observed leading from the pit west toward Honey Lake. Subsequent investigation indicated that the pit was used as a stock tank allowing cattle to have access to water from Honey Lake. Calcium carbonate or other alkali salts that leached from the soil were observed in the bottom of the pit. Several chemicals (thallium, arsenic, and phenanthrene) were detected at levels exceeding typical surface soil concentrations. Evaporation of groundwater has caused these chemicals to naturally accumulate at higher concentrations within the pit. The Unidentified Pit was created by the excavation of native soil, which the Army has agreed to replace, thereby removing the potential for adverse exposure at the site. Therefore, no further action is recommended for this site.

1.4 DESCRIPTIONS OF THE SELECTED REMEDIES

1.4.1 Paint Shop Subsite Soil

The selected remedy will address the contaminated soil at the Paint Shop Subsite by reducing VOC and SVOC concentrations in soil.

The major components of the selected remedy are:

- Excavation of solvent-contaminated soil
- Off-site treatment and disposal of contaminated soil
- Backfill of clean soil

1.4.2 TNT Leaching Beds Subsite Soil

The selected remedy will address the contaminated soil at the TNT Leaching Beds Subsite by reducing explosives concentrations in soil.

The major components of the selected remedy are:

- Excavation of explosives-contaminated soil
- On-site composting of contaminated soil
- Backfill of composted soil

1.4.3 TNT Leaching Beds Area Groundwater

Since the TCE plume at the Paint Shop Subsite and the explosives plume at the TNT Leaching Beds Subsite overlap, remedial alternatives were developed for the combined plumes. The selected remedy will address the contaminated groundwater at the TNT Leaching Beds Area by an evaluation of natural attenuation/degradation to assess whether contaminant migration and degradation rates are within acceptable ranges.

The major components of the selected remedy are:

- Further characterization of site hydrogeology

- Evaluation of natural attenuation/degradation and contaminant migration rates
- Institutional controls
- Groundwater monitoring

In the event the selected remedy is not acceptable to the State of California or the Army, a contingency alternative will be implemented. However, if the Army does not agree with the State, the Army can invoke dispute resolution via Section 12 of the Federal Facility Site Remediation Agreement (FFSRA). The contingency alternative consists of groundwater extraction and treatment with air stripping and granular activated carbon (GAC) adsorption; treated groundwater would be disposed by reinjection or by another method that is acceptable to the State.

1.4.4 Diesel Spill Area Soil and Groundwater

The selected remedy will address the contaminated soil and groundwater at the Diesel Spill Area by reducing diesel-related compound concentrations.

The major components of the selected remedy are:

- Treatment of diesel-contaminated soil using in situ bioventing
- Treatment of diesel-contaminated groundwater using vacuum vapor extraction

1.4.5 Five Remaining Sites

As discussed in Section 1.3, no further action is recommended for the following sites:

- Old Fire-Fighting Training Facility
- Nike Missile Fuel Disposal Site A
- Nike Missile Fuel Disposal Site B
- Toxic Storage Building 578
- Unidentified Pit

1.5 STATUTORY DETERMINATIONS

1.5.1 Paint Shop Subsite Soil

The selected remedy for the Paint Shop Subsite soil satisfies the statutory requirements of CERCLA §121 and §120(a)(4), as amended by SARA, in that the following mandates are attained:

- The selected remedy is protective of human health and the environment.
- The selected remedy complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action.

- The selected remedy is cost effective.
- The selected remedy utilizes permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable.
- The selected remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

1.5.2 TNT Leaching Beds Subsite Soil

The selected remedy for the TNT Leaching Beds Subsite soil satisfies the statutory requirements of CERCLA §121 and §120(a)(4), as amended by SARA, in that the following mandates are attained:

- The selected remedy is protective of human health and the environment.
- The selected remedy complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action.
- The selected remedy is cost effective.
- The selected remedy utilizes permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable.
- The selected remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

1.5.3 TNT Leaching Beds Area Groundwater

The selected remedy and contingency alternative for the TNT Leaching Beds Area groundwater satisfy the statutory requirements of CERCLA §121 and §120(a)(4), as amended by SARA, in that the following mandates are attained:

- The selected remedy and contingency alternative are protective of human health and the environment.
- The selected remedy and contingency alternative comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action.
- The selected remedy and contingency alternative are cost effective.

- The selected remedy and contingency alternative utilize permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable.
- The selected remedy and contingency alternative satisfy the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

Because the selected remedy and contingency alternative will result in contaminants remaining on site above the target cleanup levels during the remedial action, 5-year site reviews will apply to these actions [CERCLA §121(c) and 40 CFR 300.430 (f)(4)(ii)].

1.5.4 Diesel Spill Area Soil and Groundwater

The selected remedy for the Diesel Spill Area soil and groundwater satisfies the statutory requirements of CERCLA §121 and §120(a)(4), as amended by SARA, in that the following mandates are attained:

- The selected remedy is protective of human health and the environment.
- The selected remedy complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action.
- The selected remedy is cost effective.
- The selected remedy utilizes permanent solutions and alternative treatment technologies or resource recovery technologies, to the maximum extent practicable.
- The selected remedy satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

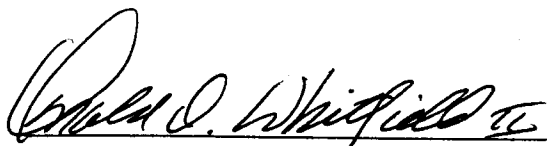
Because the selected remedy will result in contaminants remaining on site above the target cleanup levels during the remedial action, 5-year site reviews will apply to these actions [CERCLA §121(c) and 40 CFR 300.430 (f)(4)(ii)].

1.5.5 Five Remaining Sites

The maximum concentrations of chemicals detected at the five remaining sites do not pose potential risks to human health and the environment and represent natural conditions. Therefore, no remedial actions are necessary to ensure protection of human health and the environment [CERCLA §121]. Because no remedial actions are necessary, no statutory determinations of remedial actions are necessary.

SIERRA ARMY DEPOT
RECORD OF DECISION/REMEDIAL ACTION PLAN

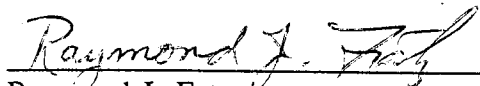
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DIESEL SPILL AREA
OLD FIRE-FIGHTING TRAINING FACILITY
NIKE MISSILE FUEL DISPOSAL SITE A
NIKE MISSILE FUEL DISPOSAL SITE B
TOXIC STORAGE BUILDING 578
UNIDENTIFIED PIT



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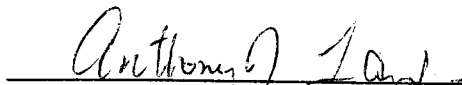
19 July 95
Date



Raymond J. Fatz

Acting Deputy Assistant Secretary of the Army
(Environment, Safety, and Occupational Health)
OASA (I, L&E)

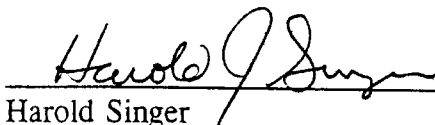
28 July 95
Date



Anthony J. Landis, P.E.

Chief of Regional Operations
Office of Military Facilities
California Department of Toxic Substances Control

9-8-95
Date



Harold Singer

Executive Officer
California Regional Water Quality Control Board
Lahontan Region

Aug 31, 1995
Date